

WHAT IS CLAIMED IS:

1. A plant containing a recombinant nucleic acid construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to a promoter, wherein said construct lacks a nucleic acid encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase, wherein said plant produces seeds that exhibit a statistically significant increase in oil content as compared to seeds produced by a corresponding plant lacking said nucleic acid construct.

2. The plant of claim 1, wherein said increase in oil content is from about 5% to about 25% greater on a dry weight basis.

3. The plant of claim 1, wherein said nucleic acid encodes a plant cytosolic ACCase.

4. The plant of claim 3, wherein said nucleic acid encodes an alfalfa cytosolic ACCase.

5. The plant of claim 1, wherein said nucleic acid encoding said ACCase lacks introns.

6. The plant of claim 1, wherein said promoter is a cauliflower mosaic virus (CaMV) 35S promoter.

7. The plant of claim 6, wherein said nucleic acid encoding said cytosolic ACCase lacks introns.

8. The plant of claim 1, wherein said plant is a soybean plant.

9. The plant of claim 1, wherein said plant is a *Brassica* plant.

10. The plant of claim 9, wherein said plant is selected from the group consisting of *Brassica napus*, *Brassica rapa*, *Brassica juncea*, *Brassica carinata*, *Brassica nigra* and *Brassica oleracea*.

11. Seeds produced by the plant of claim 1.

12. Progeny of the plant of claim 1, wherein said progeny produce seeds that exhibit said statistically significant increase in oil content.

13. A plant containing a recombinant nucleic acid construct comprising a promoter operably linked to a cytosolic ACCase coding sequence, wherein said cytosolic ACCase coding sequence lacks introns, wherein said plant produces seeds that exhibit a statistically significant increase in oil content as compared to seeds produced by a corresponding plant lacking said nucleic acid construct.

14. The plant of claim 13, wherein said promoter is a CaMV 35S promoter.

15. The plant of claim 13, wherein said promoter is seed-specific.

16. The plant of claim 13, wherein said construct further comprises a nucleic acid encoding a transit peptide operably linked to said cytosolic ACCase coding sequence.

17. A method of producing a plant, comprising:

- (a) providing a plant comprising a nucleic acid construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to a promoter; and
- (b) selecting, for at least one generation, progeny plants that produce seeds exhibiting a statistically significant increase in oil content as compared to seeds produced by a corresponding plant lacking said nucleic acid construct.

18. The method of claim 17, wherein said increase in oil content is from about 5% to about 25% greater on a dry weight basis.

19. The method of claim 17, wherein said nucleic acid encodes a plant cytosolic ACCase.

5 20. The method of claim 19, wherein said nucleic acid encodes an alfalfa cytosolic ACCase.

21. The method of claim 17, wherein said nucleic acid encoding said cytosolic ACCase lacks introns.

10 22. The method of claim 17, wherein said promoter is a CaMV 35S promoter.

23. The method of claim 17, wherein said selecting is for at least three generations.

15 24. The method of claim 17, wherein said construct further comprises a nucleic acid sequence encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase.

20 25. The method of claim 24, wherein said nucleic acid encoding said transit peptide encodes a tobacco small subunit Rubisco transit peptide.

26. The method of claim 24, wherein said promoter is a CaMV 35S promoter.

25 27. The method of claim 26, wherein said nucleic acid encoding said cytosolic ACCase lacks introns.

30 28. The method of claim 17, wherein said construct lacks nucleic acid sequences encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase.

29. The method of claim 28, wherein said promoter is a CaMV 35S promoter.

30. The method of claim 29, wherein said nucleic acid encoding said cytosolic ACCase lacks introns.

31. The method of claim 17, wherein said plant is a *Brassica* plant.

32. The method of claim 31, wherein said plant is selected from the group consisting of *Brassica napus*, *Brassica rapa*, *Brassica juncea*, *Brassica carinata*, *Brassica nigra* and *Brassica oleracea*.

33. A method of producing a plant, comprising the steps of:

(a) introducing a construct into one or more plants, said construct comprising a nucleic acid encoding a cytosolic acetyl ACCase operably linked to a promoter, wherein progeny of one or more of said transgenic plants, following at least one generation of selection, produce seeds that exhibit a statistically significant increase in oil content as compared to seeds produced by a corresponding plant lacking said nucleic acid encoding said ACCase.

34. A method of increasing the oil content in seeds, comprising the steps of:

(a) creating one or more plants containing a nucleic acid construct, said nucleic acid construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to a promoter; and

(b) selecting progeny of said one or more plants that exhibit a statistically significant increase in oil content in seeds as compared to seeds produced by a corresponding plant lacking said nucleic acid encoding said ACCase.

35. The method of claim 34, wherein said selection step comprises selecting progeny that contain said nucleic acid construct.

36. A nucleic acid construct comprising a cytosolic ACCase coding sequence operably linked to a promoter, wherein said construct lacks a nucleic acid encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase.

5 37. The nucleic acid construct of claim 36, wherein said cytosolic ACCase coding sequence lacks introns.

38. A nucleic acid construct comprising a cytosolic ACCase coding sequence operably linked to a promoter, wherein said cytosolic ACCase coding sequence lacks introns.

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39. The nucleic acid construct of claim 38, wherein said construct further comprises a nucleic acid sequence encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase.

FOOTNOTES